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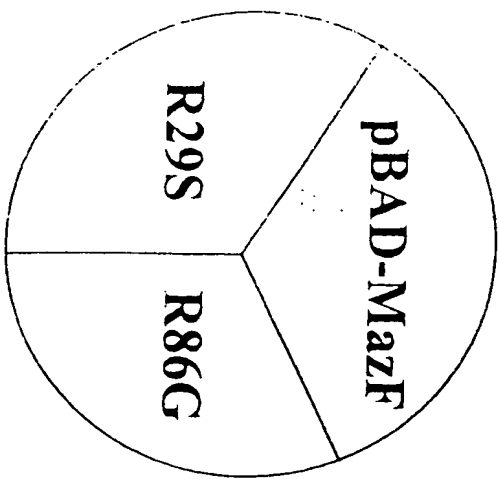


FIG. 1A

FIG. 1B

S
▲

<i>E.coli</i>	1	-----MVSRYVPDMGLIIVWFENITK	IGHA	THFAVVLSPFMYENKKG	-----MCLCVP		
<i>B.halodurans</i>	1	-----MPVPDMNLVYWFENIQS	HLA	ATTAELPKLEENKIG	-----FAVVC		
<i>S.epidermidis</i>	1	-----MIRGVVYLAISVQ	GVV	VIIQNTGKHYSP	-----TVIVAA		
<i>S.aureus</i>	1	-----MIRGVVYLAISVQ	GVV	VIIQNTGKHYSP	-----TVIVAA		
<i>B.subtilis</i>	1	-----MLVKGIVYFAISVV	GVV	VIIQNTGKHYSP	-----TALVAA		
<i>N.meningitidis</i>	1	-----MYIPDKIVTHHNESS	KIKGFAA	PKAFHAG	-----VFAC		
<i>M.morganii</i>	1	MRRRLVRRKSDME	EWLS	ATAH	QTVV	IPAAEFVLR	-----PVV
<i>M.tuberculosis</i>	1	-----MMRGEIWIQ	THGAR	ANNO	AAV	NRA	ATATRLGRGVITV

E. coli 51 CHTCS--KCYIFEIVLS----QEEAALVPSIAWRANGATKGTAPPELQLIKA
B. halodurans 48 FTRQ--KCYIFEIHP--PIPTTWRANFHIKQQAPEETMTCLQ
S. epidermidis 46 TTDG.NK.KI.THEIEKKKYKDYSLDQK-K-KKEITFLSFSKIEIN
S. aureus 46 TTRG.NK.KI.THEIEKKKYKDKSLDQK-K-KKEITYSFKKEIN
B. subtilis 47 ITAQCK.KL.THEIDAKKYFLRLSLDQK-K-QTIDITHEDMDKIE
N. meningitidis 48 LSQGNAAARSSGMISTLLGATETQNHCHLQQLKASFKEIPHYVDDLA
M. morganii 56 VLSGGN-FARTAGFAVSLDGAIRTTAVRCD.PTLMKAGGKRLR-PETIDDLG
M. tuberculosis 51 VLSNIA-KVYFEQVLLSATTTLQVICKAAQVLSIAT-ETLRPIGRSAEELQIE

<i>E. coli</i>	105	KINVLIG-----
<i>B. halodurans</i>	103	LIHTFIS-----
<i>S. epidermidis</i>	105	ALDTSIGNNFDHHKS-----
<i>S. aureus</i>	105	ALMISIGLNAVAQPEKLGVYYMYFSEINKILI
<i>B. subtilis</i>	106	ALQISALIDF-----
<i>N. meningitidis</i>	108	RIGAVIFD-----
<i>M. organii</i>	115	RLATIT-----
<i>M. tuberculosis</i>	109	AKLHLDIWS-----

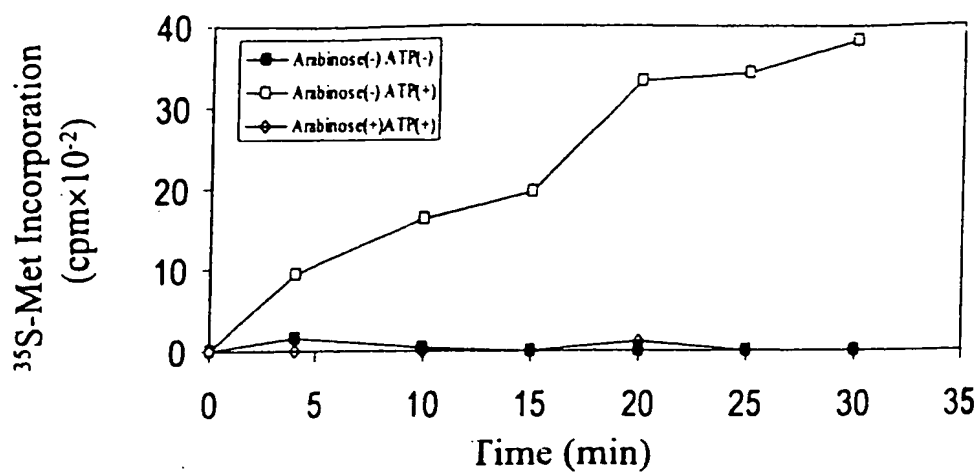


FIG. 2A

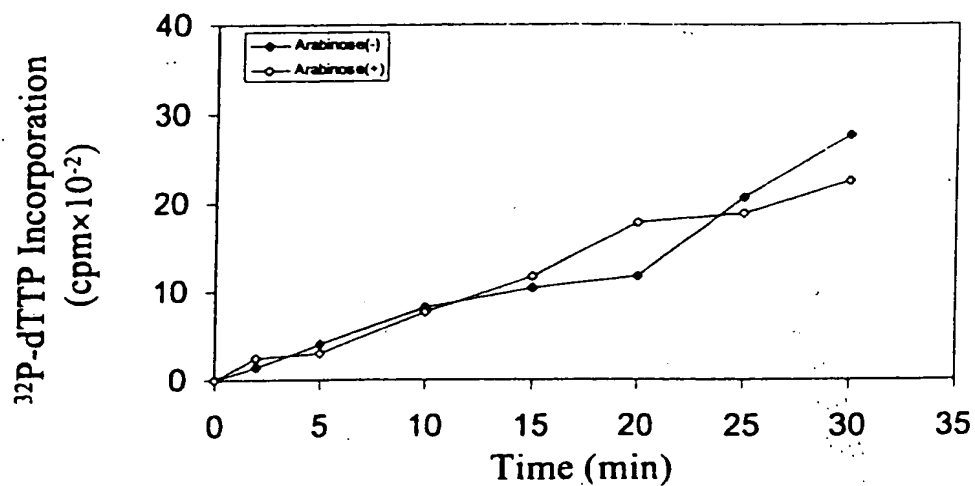


FIG. 2B

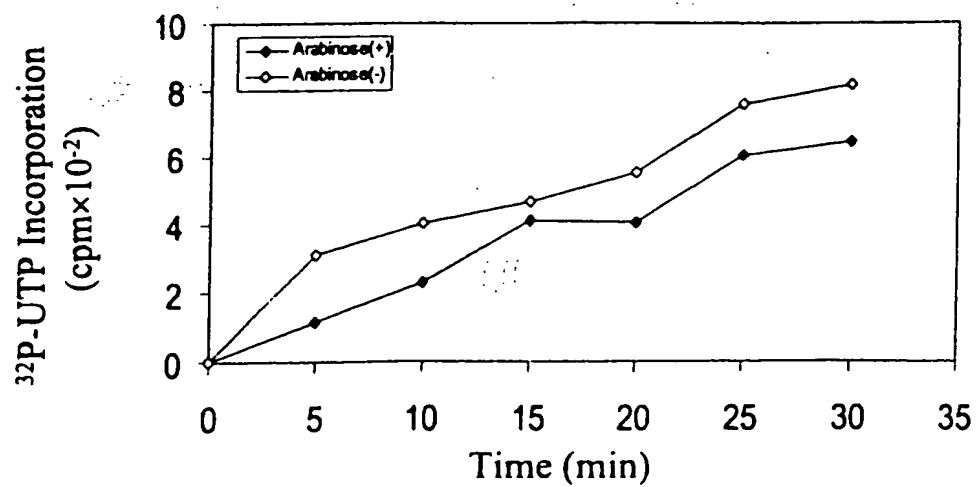


FIG. 2C

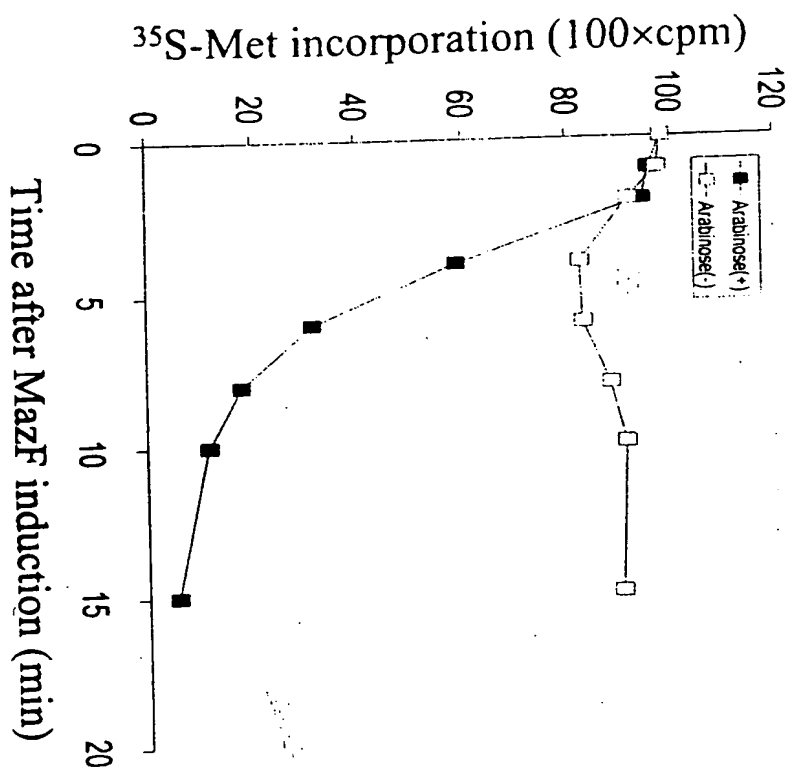


FIG. 2D

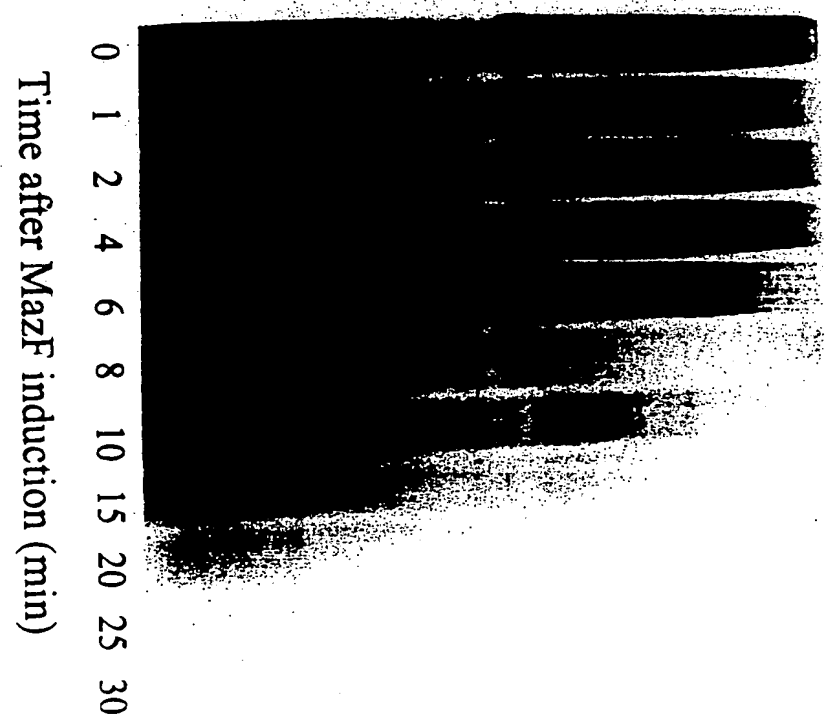


FIG. 2E

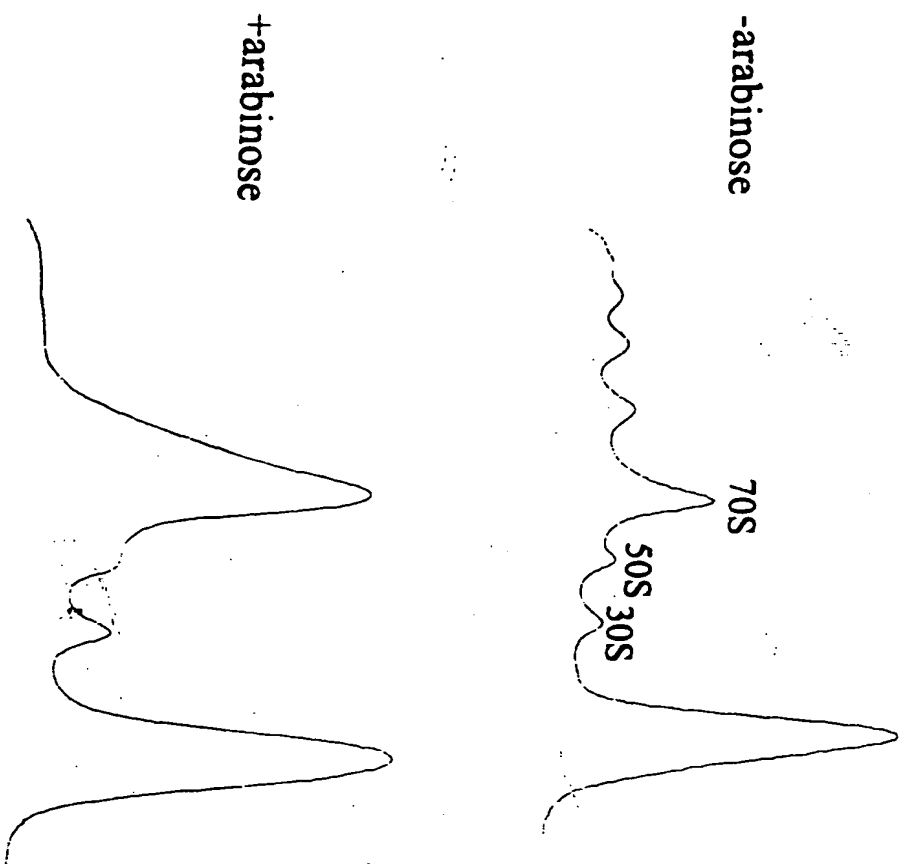


FIG. 3A

FIG. 3B

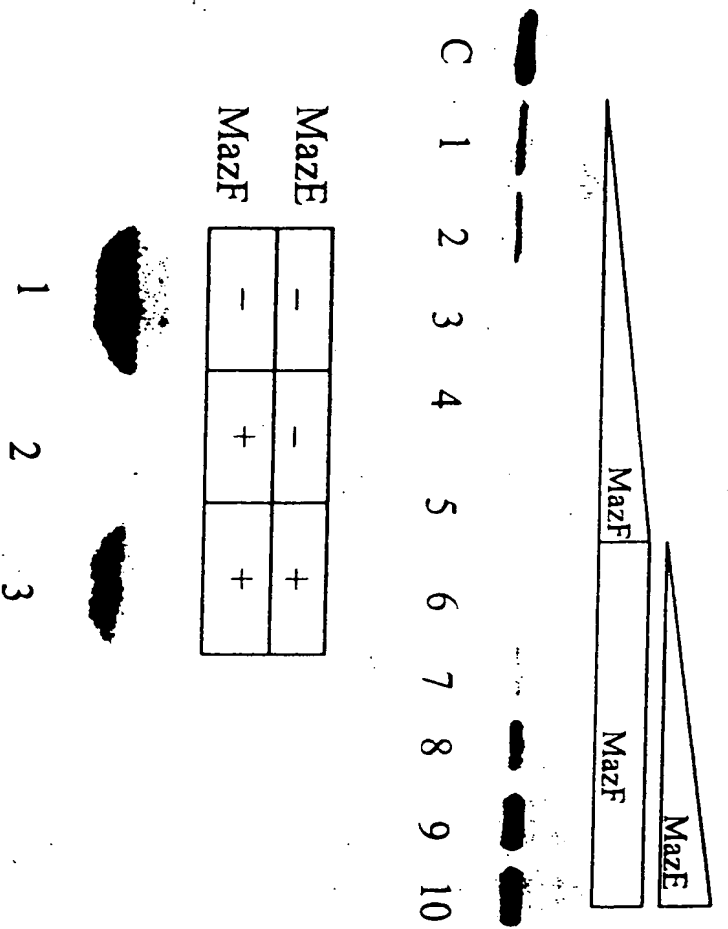


FIG. 3C

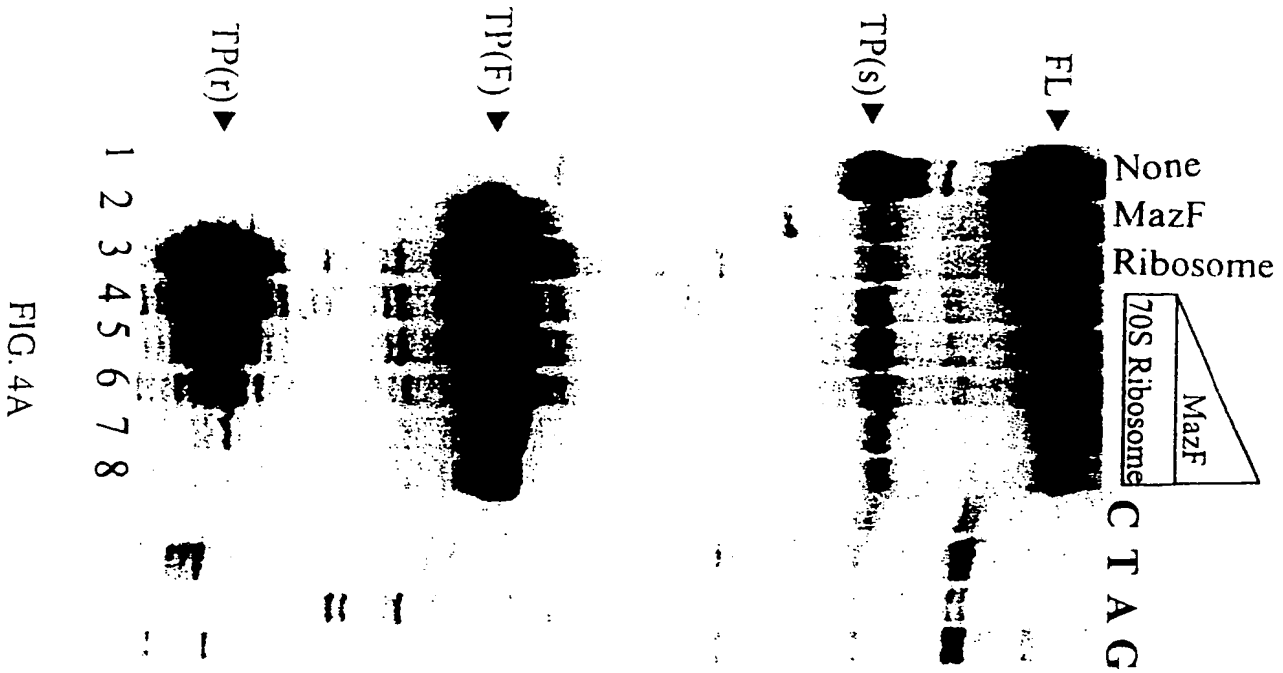


FIG. 4A

A
T
A
A
C
A
T
G

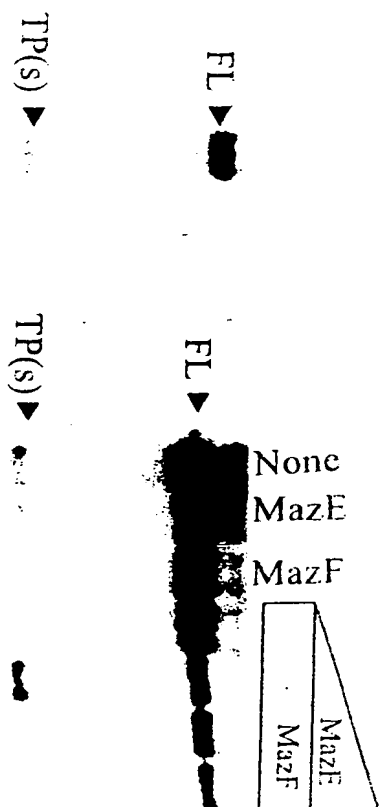


FIG. 4B

FIG. 4C

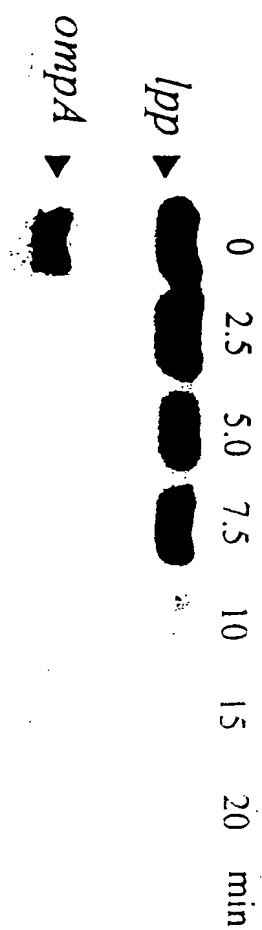


FIG. 4D

Control

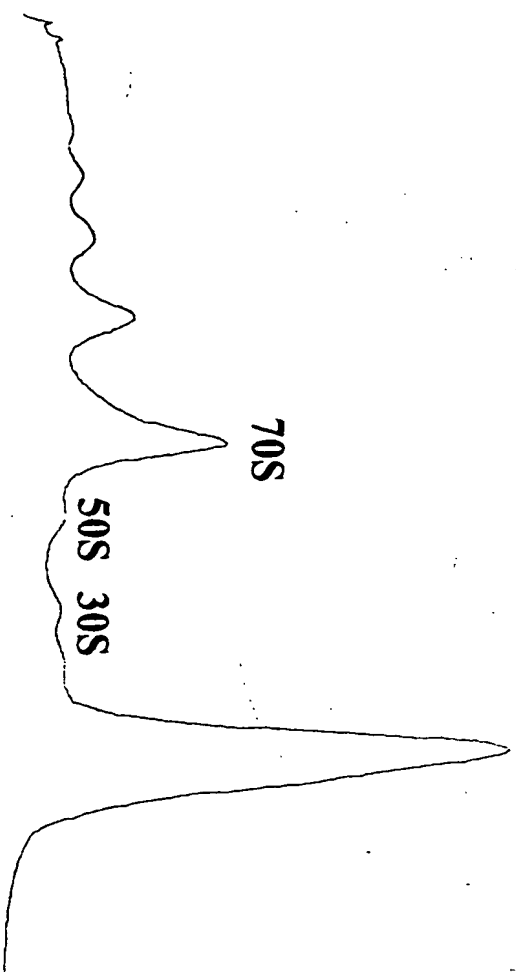


FIG. 5A

Kasugamycin (500 ug/ml)

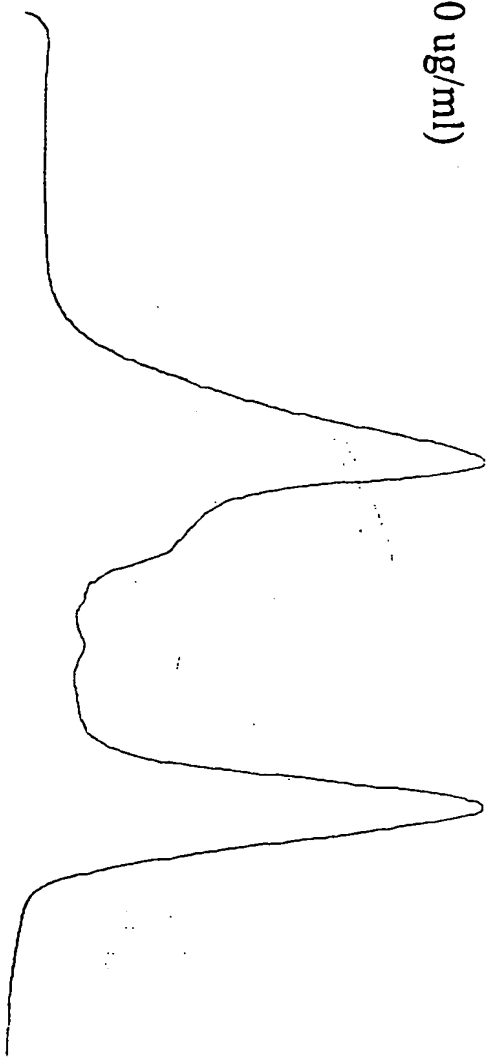


FIG. 5B

1 2 3 4 5 6

FL ▶ 

TP(s) ▶ 

TP(F) ▶ 

TP(r) ▶ 

FIG. 6

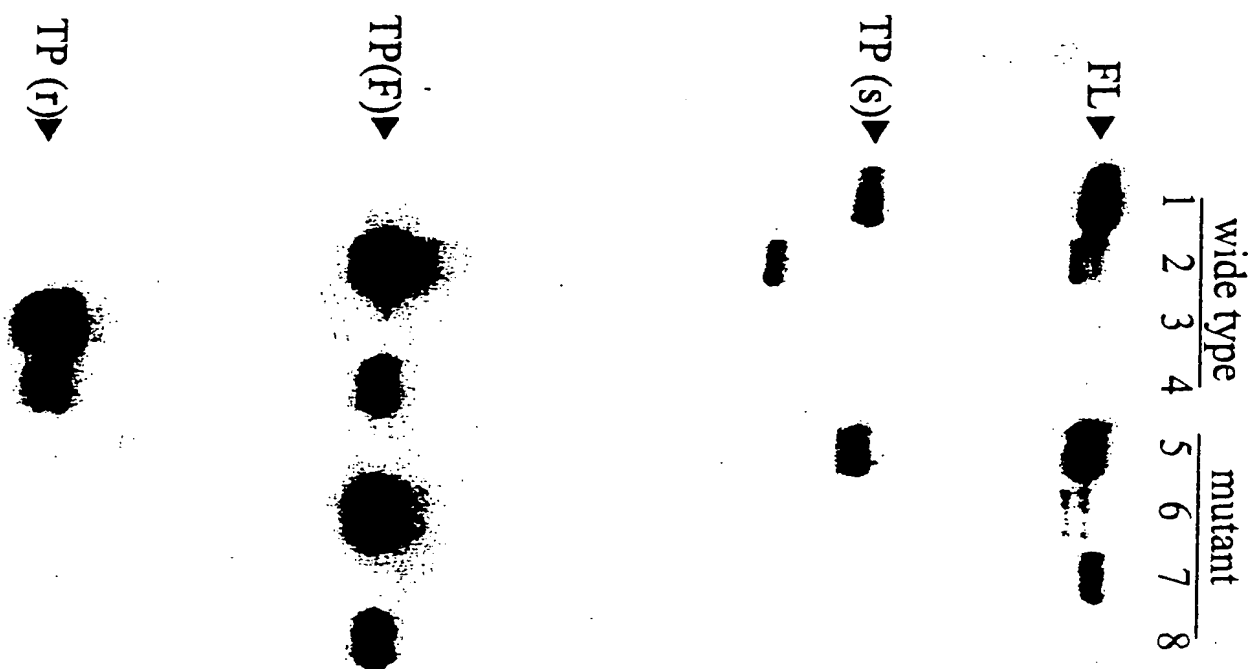


FIG. 7

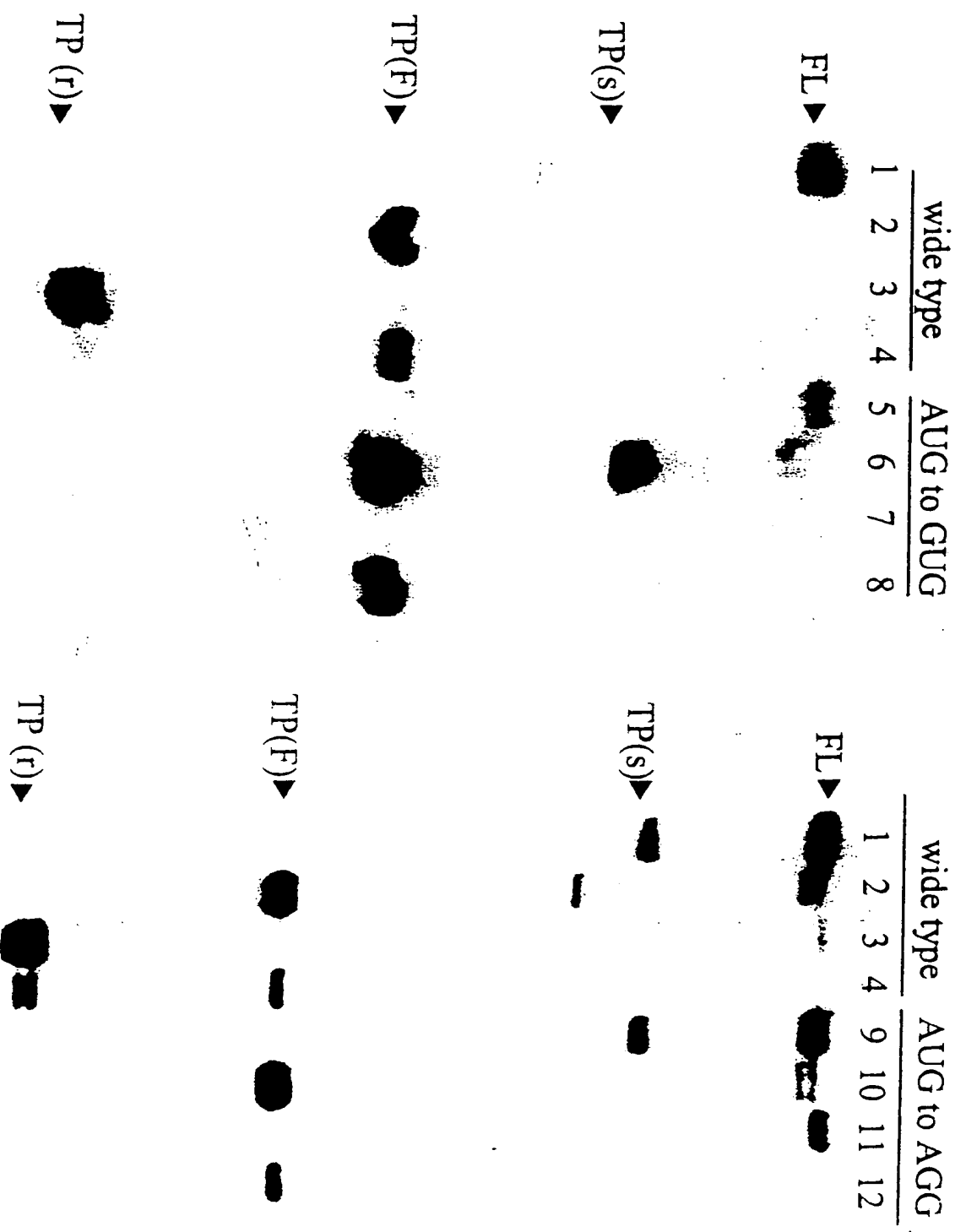


FIG. 8

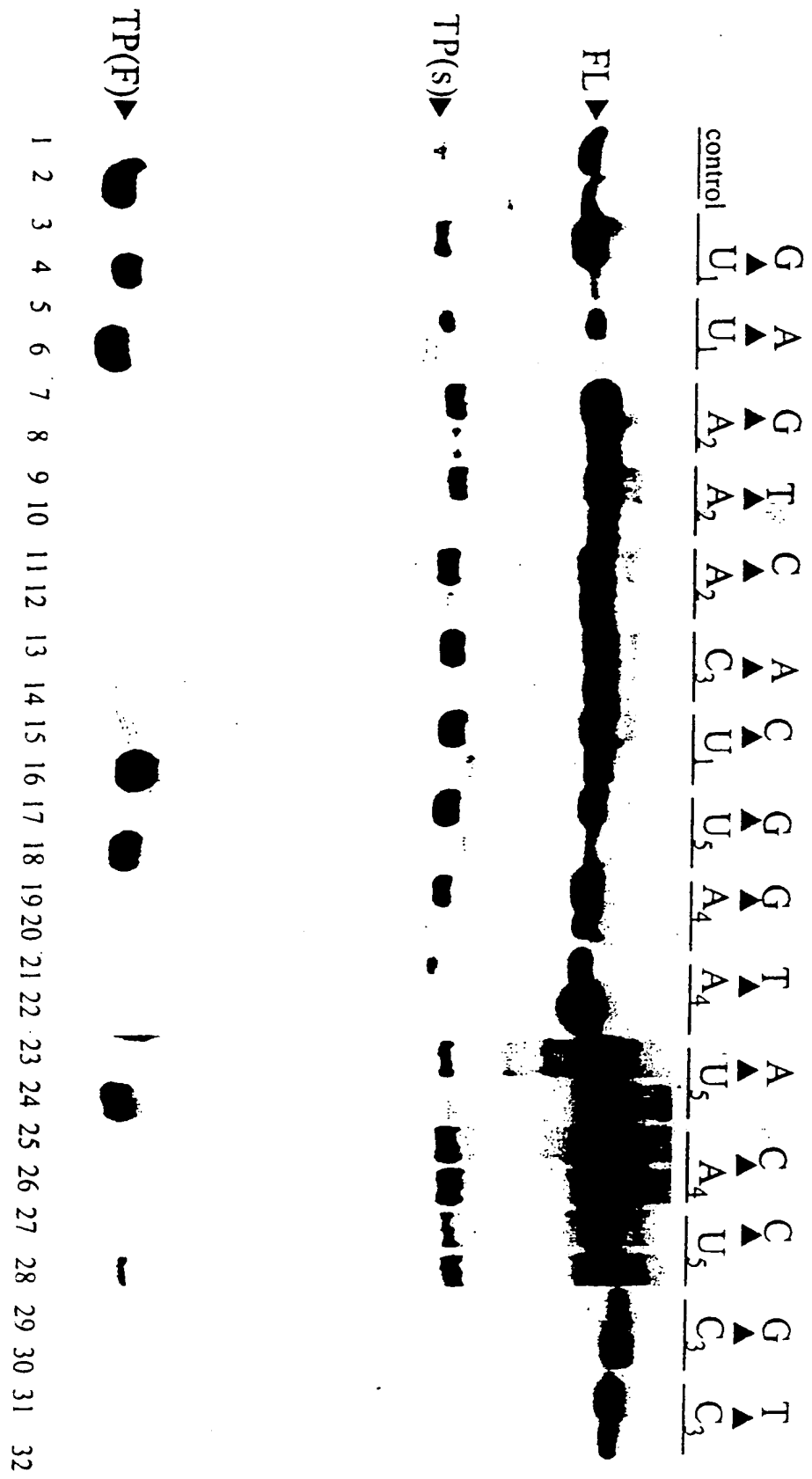


FIG. 9

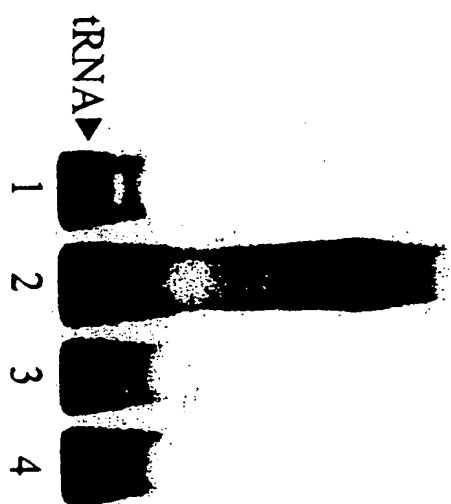
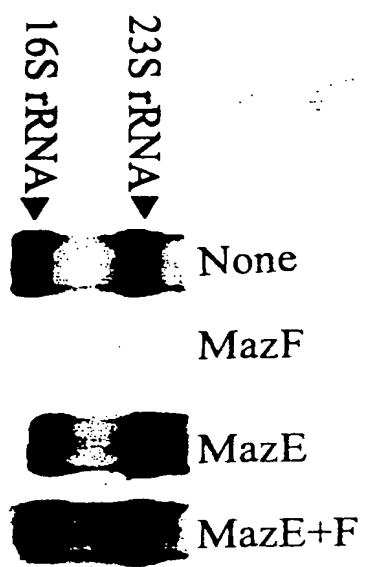


FIG. 10

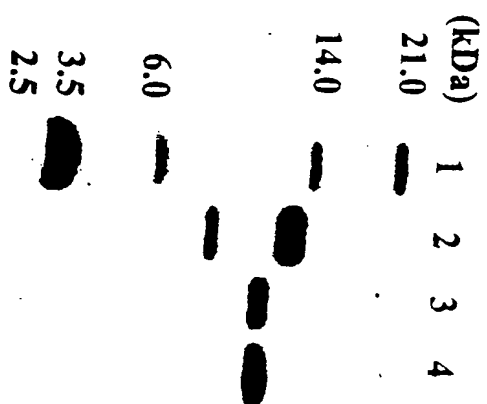


FIG. 11

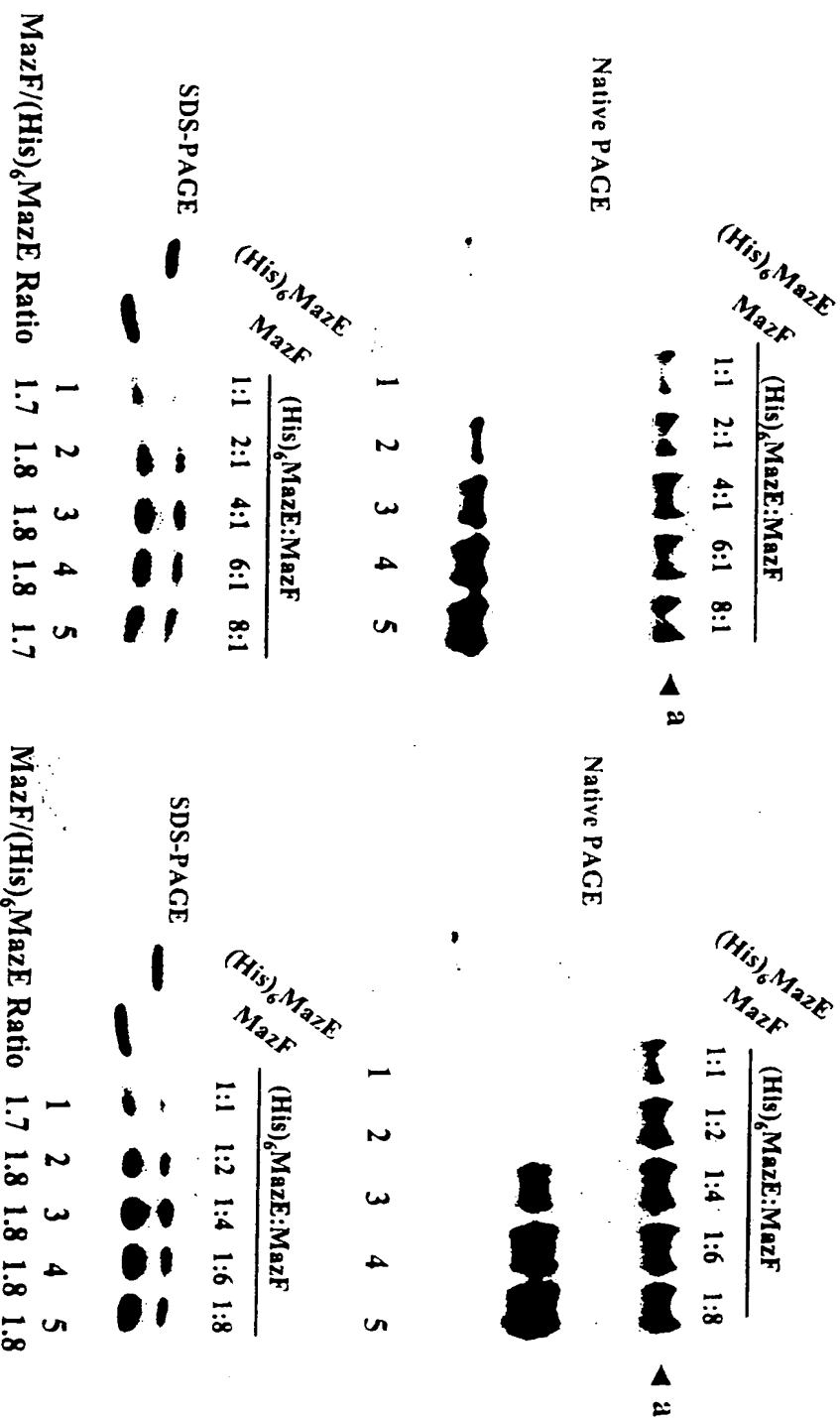


FIG. 12A

FIG. 12B

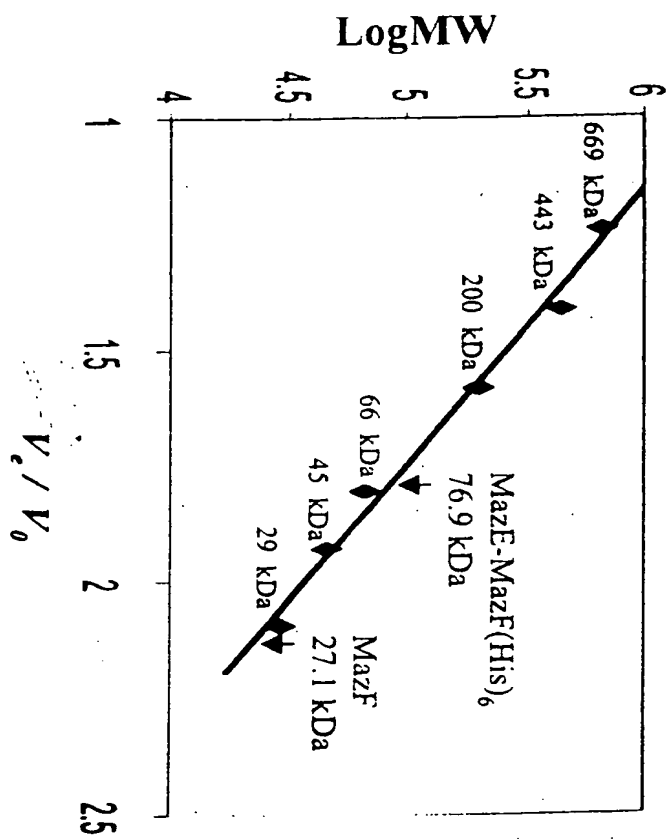


FIG. 13

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4

(His)₆MazE 0 0.2 0.4 0.6 0.8 1 2 4 6 8 10 20 (μM)

MazF 0 1 10 20 (μM)

FIG. 14A

FIG. 14B

1 2 3 4 5 6 7 8 9 10 11 12

(His)₆MazE 0 0.2 0.4 0.6 0.8 1 2 4 6 8 10 20 (μM)
 MazF 0 0.4 0.8 1.2 1.6 2 4 8 12 16 20 40 (μM)

FIG. 14C

1 2 3 4 5 6 7 8

FIG. 16A

1 2 3 4 5 6

FIG. 16B

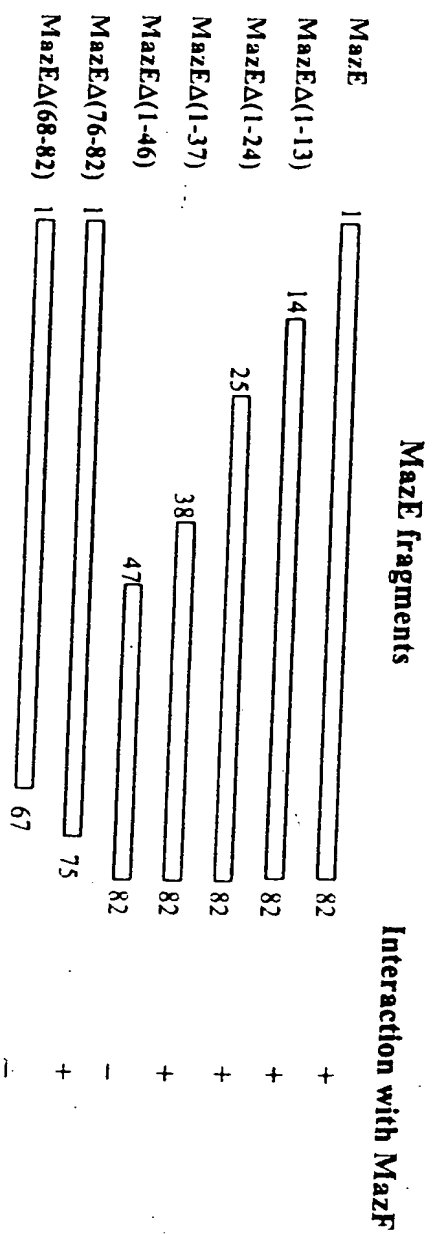


FIG. 17

1 2 3 4 5 6 7

FIG. 18A

1 2 3 4 5

FIG. 18B

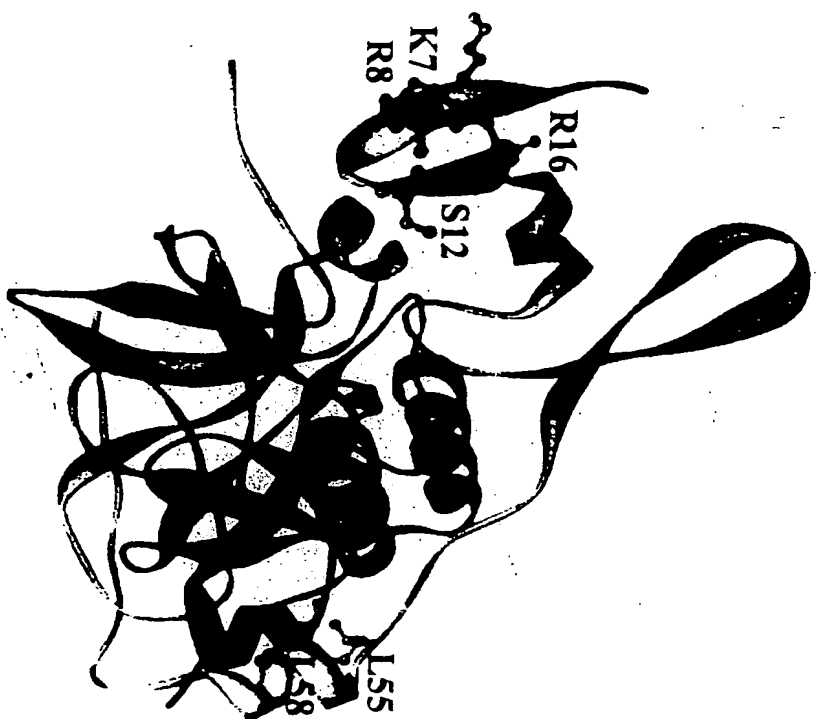


FIG. 19

FIG. 20A

Nucleic acid sequence of *Escherichia coli* MazF gene
(NP_289336.1)

atggta agccgatacg tacccgatat gggcgatctg atttgggttg attttgaccc gacaaaaggt agcgagcaag
ctggacatcg tccagctgtt gtcctgagtc ctttcatgta caacaacaaa acaggtatgt gtctgtgtgt tccttgata
acgcaatcaa aaggatatcc gttcgaagtt gttttatccg gtcaggaacg tgatggcgta gcgttagctg atcaggtaaa
aagtatcgcc tggcgggcaa gaggagcaac gaagaaagga acagttgcc cagaggaatt acaactcatt
aaagccaaaa ttaacgtact gattgggtag

FIG. 20B

Amino acid sequence of *Escherichia coli* MazF protein
(NP_289336.1)

MVSRYPDMG DLIWVDFDPT KGSEQAGHRP AVVLSPFMYN NKTGMCLCVP
CTTQSKGYPF EVVLSGQERD GVALADQVKS IAWRARGATK KGTVAPEELQ
LIKAKINVLI G

FIG. 21A

Nucleic acid sequence of *Escherichia coli* MazE gene

atgatccacagtagcgtaaagcggttggggaaattcaccggcggtgcggatccccggctacgttaatgcaggcg
ctcaatctgaatattgatgatgaagtgaagattgacctgggtggatggcaaattaattattgagccagtgcg
aaagagcccgtatttacgcttgctgaactgggtcaacgacatcacgccgaaaacctccacgagaatatcgac
tggggagagccgaaagataaggaagtctggtaa

FIG. 21B

Amino acid sequence of *Escherichia coli* MazE protein

MIHSSVKRWGNPAVRIPATLMQALNLDDEVKIDLVGKLIIEPVRKEPVFTLAELVN
DITPENLHENIDWGEPKDKEVW

FIG. 22A: Nucleic acid sequence of *Bacillus halodurans* MazF gene (SEQ ID NO: 39)

```
atgccagttac cggatagagg gaattcttgtt tatgtagact ttaaccacaca atcggggtcat
gaccaagccg ggacacgacc ggctattgtt ttgtccccta aattatttaa taaaaacaca
ggttttgcgg tggtttgtcc aattaccaga caacaaaaag gttatccttt tgaaatagaa
ataccaccgg ggttacctat tgaaggggtt attcttactg accaagtaaa aagtctggat
tgagagagcaa gaaactttca cattaaagga caagcaccag aggaaactgt tactgattgt
ttacaactta ttcatacatt tttatcttaa
```

FIG. 22B: Nucleic acid sequence of *Staphylococcus epidermidis* MazF gene (SEQ ID NO: 40)

```
atgattagaag aggagatggt tatttagcgg atttatcacc agttcaaggg tctgaacaag
ggggagtaag acctgtagtt atcattcaaa atgatactgg taataaatat agtccaactg
taattgtagc tgcgattact gatgggatta ataaagcgaa aataccaacc cacgtagaaa
ttgaaaagaa aaagtataaa ttagacaaag attcagttat tcttcttgaa caaattagaa
cactagataa aaagcgttta aaagaaaaat taacattttt atcagagagt aaaatgatag
aggttgataa tgccttagat attagtttgg gattaaataa ctttgatcat cataaatcttaa
```

FIG. 22C: Nucleic acid sequence of *Staphylococcus aureus* MazF gene (SEQ ID NO: 41)

```
atgattagac gaggagatgt ttatttagca gatttatcac cagtacaggg atctgaacaa
gggggagtc gacctgtagt cataattcaa aatgatactg gtaataaata tagtcctaca
gttattgttg cggcaataac tggtaggatt aataaagcga aaataccgac acatgtagag
attgaaaaga aaaagtataa gttggataaa gactcagtta tattattaga acaaattcgt
acacttgata aaaaacgatt gaaagaaaaa ctgacgtact tatccgatga taaaatgaaa
gaagtagata atgcactaat gattagttaa gggctgaatg cagtagctca accagaaaaa
ttaggcgtct attatatgta tttttcagag ataaataaaa tattgatataa
```

FIG. 22D: Nucleic acid sequence of *Bacillus subtilis* MazF gene (SEQ ID NO: 42)

```
ttgattgtgaa acgcggcgat gtttattttg ctgattttatc tctgtttgtt ggctcagagc
aaggcggggt gcgcccgggt ttagtgatcc aaaatgacat cggaaatcgc ttcagcccaa
ctgctattgt tgcagccata acagcacaaa tacagaaagc gaaattacca acccacgtcg
aaatcgatgc aaaacgctac ggttttgaaa gagattccgt tattttgctg gagcaaattc
ggacgattga caagcaaagg ttaacggata agattactca tctggatgat gaaatgatgg
ataaggttga tgaagcctta caaatcagtt tggcactcat tgatttttag
```

FIG. 22E: Nucleic acid sequence of *Neisseria meningitidis* MC58 MazF gene (SEQ ID NO: 43)

```
atggat atggtagtagc gcggcggaat ctatctggtc tccttagacc cgaccgtagg aagcgaaatc
aaaaagacac gtccttgtgt cgtagtctct cctcctgaaa tacacaacta tctcaagact
gtgctgatcg ttcccatgac gagcggaagc cgtcctgccc cgttcgcgct caatgtccgc
tttcaggata aagacggttt gcttttgccc gaacagatta gggctgtgga taaagccgga
ttggtcaaac atcttggcaa tttagacaac agtacggctg aaaaactgtt tgcagtattg
caggagatgt ttgcctga
```

FIG. 22F: Nucleic acid sequence of *Morganella morganii* MazF gene (SEQ ID NO: 44)

atgcgcccgg cggctggtca ggaggaaatc tgacatggaa agaggggaaa tctggcttgt
ctcgcttgac cctaccgcag gtcattgagca gcagggaacg cggccgggtac tgattgtcac
gccggtgctt ttttaaccgcg tgaccgcctt gcctgttggt gtgcccgtag ccagcggagg
taattttgcc cgcacagcag gctttgctgt gtcgcttgac ggcgcccggc tacgtaccac
cggcggttgtg cgttgcgatc aaccccgga cgtcgatatg aaagcccgcg gcggcaaacg
actcgaacgg gtgccagaga ctatcatgga cgacgttctt ggccgtctgg ccaccatcct
gacctga

FIG. 22G: Nucleic acid sequence of *Mycobacterium tuberculosis* MazF gene (SEQ ID NO: 45)

gtgggtgattc ggggagcggc ctacagggtc gacttcggcg atgcgaagcg aggccacgag
caacgcgggc ggcgctacgc cgtggtcacc agccccggct cgatgccgtg gattgttagta
accgtgggtg cgacgtcgac aagcgcccaa cctgcgggtt tccgaccaga gctggaagtc
atgggaacaa agacacgggt cctggtggat cagatccgga cgatcggcat cgtctatgtg
cacggcgatc cggtcgacta tctggaccgt gaccaaattg ccaaggtgga acacgccgtg
gcacgatacc ttggtctgtga

FIG. 22H: Nucleic acid sequence of *Bacillus anthracis* MazF gene (SEQ ID NO: 79)

tt gattgtaaaa cgcggcgacg tgtattttgc agacctttcc ccagttgttg
gttctgagca aggaggtgtt cgtccgggtc ttgtcattca aaatgacatc ggaaatcgtt
ttagtccaac ggtgattgta gcggctatta ctgcacagat tcaaaaagcg aaattaccca
ctcatgtgga aattgatgcg aaaaagtacg gttttgagag agattctgtt attttacttg
agcagattcg aacaatcgat aagcagcgtt taacggacaa aatcactcac ttagatgaag
tgatgatgat tcgtgtagat gaagcgctac aaattagttt aggactaata gatttttaa

FIG. 23A: Amino acid sequence of *Bacillus halodurans* MazF
(NP_244588.1) (SEQ ID NO: 46)

MPVPDRGNLV YVDFNPQSGH DQAGTRPAIV LSPKLFNKNT GFAVVCPIR QQKGYPFIE
IPPGLPIEGV ILTDQVKSLD WRARNFHIKG QAPEETVTDC LQLIHTFLS

FIG. 23B: Amino acid sequence of *Staphylococcus epidermidis*
MazF (AAG23809.1) (SEQ ID NO: 47)

MIRRGDVYLA DLSPVQGSEQ GGVRPVVIIQ NDTGNKYSPT VIVAAITDGI NKAKIPTHVE
IEKKKYKLDK DSVILLEQIR TLDKKRLKEK LTFLSESKMI EVDNALDISL GLNDFDHHKS

FIG. 23C: Amino acid sequence of *Staphylococcus aureus* MazF
(NP_372592.1) (SEQ ID NO: 48)

MIRRGDVYLA DLSPVQGSEQ GGVRPVVIIQ NDTGNKYSPT VIVAAITGRI NKAKIPTHVE
IEKKKYKLDK DSVILLEQIR TLDKKRLKEK LTYLSDDMKM EVDNALMISL GLNAVAQPEK
LGVYYMYFSE INKILI

FIG. 23D: Amino acid sequence of *Bacillus subtilis* (1NE8_A)
MazF (SEQ ID NO: 49)

MIVKRGDVYF ADLSPVVGSE QGGVRPVLVI QNDIGNRFSP TAIVAAITAQ IQKAKLPTHV
EIDAKRYGFE RDSVILLEQI RTIDKQRLTD KITHLDDEMM DKVDEALQIS LALIDF

FIG. 23E: Amino acid sequence of *Neisseria meningitides*
MC58 MazF (NP_266040.1) (SEQ ID NO: 50)

MYIPDKGDIF HLNFDPSGK EIKGGRFALA LSPKAFNRAT GLVFACPIQ GNAAAARSSG
MISTLLGAGT ETQGNVHCHQ LKSLDWQIRK ASFKETVPDY VLDDVLARIG AVLFD

FIG. 23F: Amino acid sequence of *Morganella morganii* MazF
(AAC82516.1) (SEQ ID NO: 51)

MRRRLVRRKS DMERGEIWL VSLDPTAGHEQ QGTRPVLIVT PAAFNRVTRL PVVVPVTSGG
NFARTAGFAV SLDGAGIRTT GVVRCQPR TIDMKARGGKR LERVPEITMD DVLGRLATILT

FIG. 23G: Amino acid sequence of *Mycobacterium tuberculosis*
MazF (NP_217317.1) (SEQ ID NO: 52)

MMRRGEIWQV DLDPARGSEA NNQRPVVVS NDRANATATR LGRGVITVVP VTSNIAKVYP
FQVLLSATTT GLQVDCKAQA EQIRSIATER LLRPIGRVSA AELAQLDEAL KLHLDLWS

FIG. 23H: Amino acid sequence of *Bacillus anthracis* MazF
(NP 842807) (SEQ ID NO: 80)

MIVKRGDVYF ADLSPVVGSE QGGVRPVLVI QNDIGNRFSP TVIVAAITAQ IQKAKLPTHV
EIDAKKYGFE RDSVILLEQI RTIDKQRLTD KITHLDEVMM IRVDEALQIS LGLIDF

FIG. 24A: Nucleic acid sequence of *Deinococcus radiodurans mazE* gene (SEQ ID NO: 53)

atgacgagtcaaattcagaaatgggggcaacagcctcgcgctccgcattcccaaagctctggcgagcaggtg
ggactgacgcagagttcagaagtggagctgcttcttcaggacggtcagattgtcatccggccagttcctgct
cggcagtagcatctcgccgctgctggccgaaatgacacctgaaaatctgcatggggaaacagactggggc
gcactggaaggacgcgaggaatggttaa

FIG. 24B: Nucleic acid sequence of *Bacillus halodurans mazE* gene (SEQ ID NO: 54)

gtgacactcatgactactatacaaaaagtggggaaatagtttagctgttcgtattccgaaccattatgctaaa
catattaacgttacgcaaggatctgaaattgaactaagcttagggagtgatcaaacgattattttaaagcct
aaaaaaagaaagccaacattagaggaattagtgggcaaaaatcactcctgaaaacagacataacgaaattgat
ttcgggagaacaggaaaggaattgttgttaa

FIG. 24C: Nucleic acid sequence of Plasmid R100 *pemI* gene (SEQ ID NO: 55)

atgcataccacccgactgaagaggggttggcggtcagttatgctgaccgtcccaccggcactgctgaatgcg
ctgtctctggggcacagataatgaagttggcatggtcattgataatggccggctgattgttgagccgtacaga
cgcccgcaatattcactggctgagctactggcacagtgtgatccgaatgctgaaatatcagctgaagaacga
gaatggctggatgcaccggcgactggtcaggaggaaatctga

FIG. 24D: Nucleic acid sequence of Plasmid R466b *pemI* gene (SEQ ID NO: 56)

atgttatattttaaatataactttttatggagggaaaaatgcataccactcgactgaagaaggttggcggtca
gtcatgtgaccgtcccaccggcactgctgaatgcgctgtcgctgggtacagataatgaagttggcatgggtc
attgataatggccggctgattgtggagccgcacagacgcccgcagttactggtgagctgttggcacag
tgcatccgaacgctgaaatctcggcagaagaacgtgaatggctggatgcgcggcggtggtcaggaggaa
atctga

FIG. 24E: Nucleic acid sequence of *Escherichia coli chps* gene (SEQ ID NO: 57)

gtgcagatgcgtattaccataaaaagatgggggaacagtgcaggtatgggtcattcccaatatcgtaatgaa
gaacttaacttacagccggggcagagcgtggaagtgcaggtgagcaacaaccaactgattctgacaccatc
tccaggcgctactcgcttgatgaactgctggcacagtgtgacatgaacgcgcgggaacttagcgagcaggat
gtctggggtaaatccaccctgcggtgacgaaatatggttaa

FIG. 24F: Nucleic acid sequence of *Pseudomonas putida* KT2440 *mazE* gene (SEQ ID NO: 58)

atgcagatcaagattcaacagtggggcaacagcgccgcatccgcttgcccgccgcagtactcaagcagatg
cgctcggtgtcggtccaccctgagccttgacacaacgggtgagacgatggtgctcaaaccgcgtcaggtcg
aaaccaagtacacccttgaggaactgatggccagtgtagctgagtgacacggagccagaggacatggcc
gactggaatgccatgcgcccagtggggcgtgaagtgtga

FIG. 24G: Nucleic acid sequence of *Photobacterium profundum mazE* gene (SEQ ID NO: 59)

gtgcaatgagaactcagataagaaagatcggttaactcacttggttcaattattcctgccacttttattcgtc
agcttgaactggcagagggcgagaaattgatgttaaaacgggttgatggaaaaattgtgattgagccaatta
gaaaaatgaaaaacgtttccattcagtgagcgtgaattactaagtggattggatgcacacactgctcatg
ctgacgaactggttgaattttctaccaggagctaggcgaataa

FIG. 25A: Amino acid sequence of *Deinococcus radiodurans* Maze (GenBank Accession No. NP_294139) (SEQ ID NO: 60)

MTSQIQKWGN SLALRIPKAL AQQVGLTQSS EVELLLQDGQ IVIRPVPARQ YDLAALLAEM
TPENLHGETD WGALEGREEW

FIG. 25B: Amino acid sequence of *Bacillus halodurans* Maze (GenBank Accession No. NP_244587) (SEQ ID NO: 61)

MTLMTTIQKW GNSLAVRIPN HYAKHINVTQ GSEIELSLGS DQTIILKPKK RKPTLEELVA
KITPENRHNE IDFGRTGKEL L

FIG. 25C: Amino acid sequence of PemI plasmid R100 (GenBank Accession No. NP_052993) (SEQ ID NO: 62)

MHTTRLKRVG GSVMLTVPPA LLNALSLGTD NEVGMVIDNG RLIVEPYRRP QYSLAELLAQ
CDPNAEISAE EREWLDAPAT GQEEI

FIG. 25D: Amino acid sequence of PemI plasmid R466b (GenBank Accession No. AAC82515) (SEQ ID NO: 63)

MLYLNITFME GKMHTTRLKK VGGSVMLTVP PALLNALSLG TDNEVGMVID NGRRLIVEPHR
RPQYSLAELL AQCDPNAEIS AEEREWLDAP AAGQEEI

FIG. 25E: Amino acid sequence of *Escherichia coli* ChpS (GenBank Accession No. NP_290856) (SEQ ID NO: 64)

MQMRITIKRW GNSAGMVIPN IVMKELNLQP GQSVEAQVSN NQLILTPISR RYSLDELLAQ
CDMNAAELSE QDVWGKSTPA GDEIW

FIG. 25F: Amino acid sequence of *Pseudomonas putida* Maze KT2440 (GenBank Accession No. NP_742931) (SEQ ID NO: 65)

MQIKIQWGN SAAIRLPAAV LQMRLGVGS TLSLDTTGET MVLKPVRSKP KYTLEELMAQ
CDLSAPEPED MADWNAMRPV GREV

FIG. 25G: Amino acid sequence of *Photobacterium profundum* Maze (GenBank Accession No. AAG34554) (SEQ ID NO: 66)

AMRTQIRKIG NSLGSIIPAT FIRQLELAEG AEIDVKTVDG KIVIEPIRKM KKRFPFSERE
LLSGLDAHTA HADELVVIST QELGE

FIG. 26A

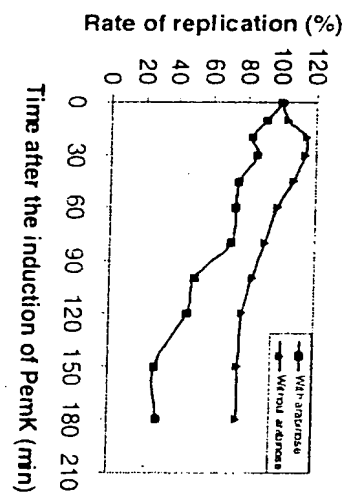


FIG. 26B

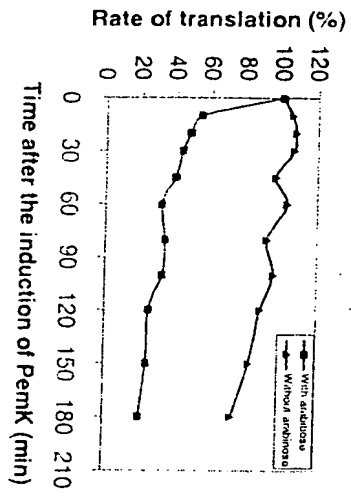


FIG. 26C

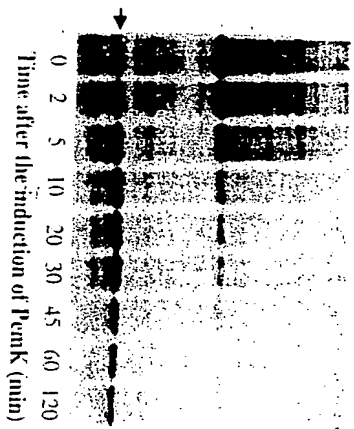


FIG. 27A

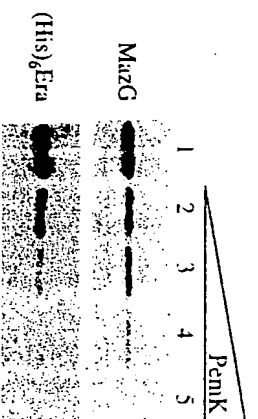


FIG. 27B

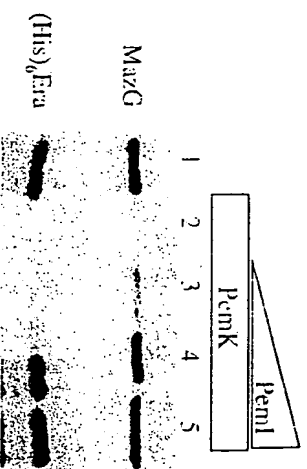


FIG. 27C

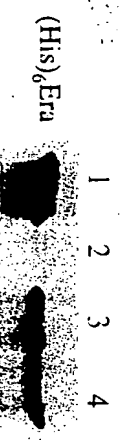


FIG. 28A



FIG. 28B

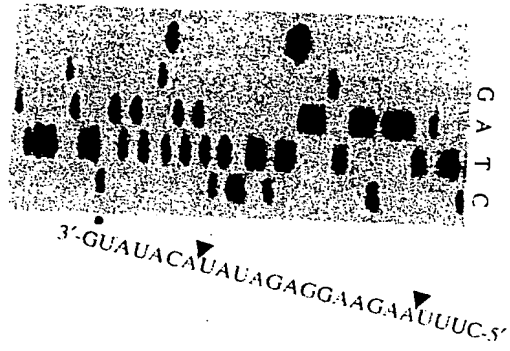


FIG. 28C

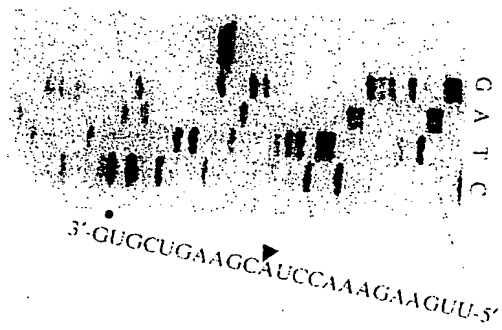


FIG. 28D

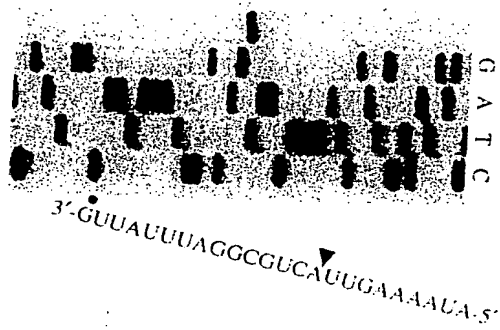


FIG. 28E

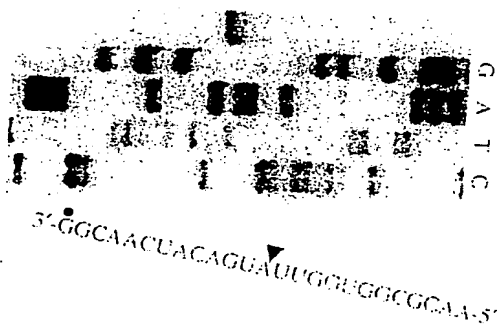


FIG. 29A

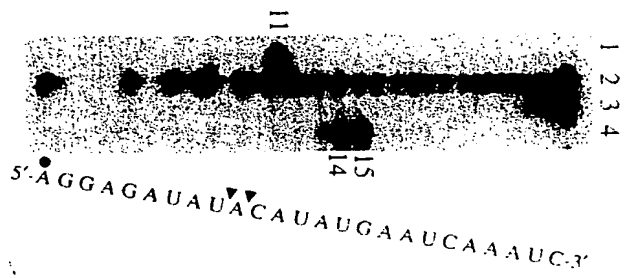


FIG. 29B

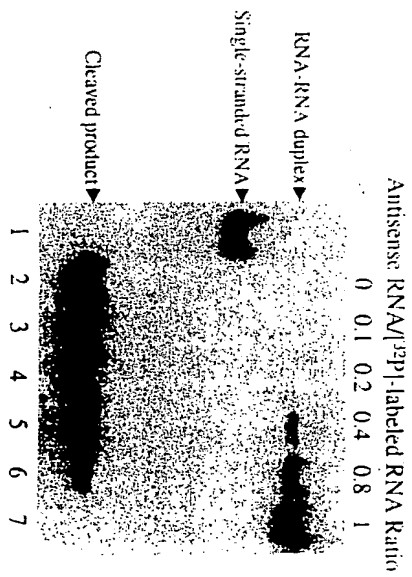


FIG. 30A

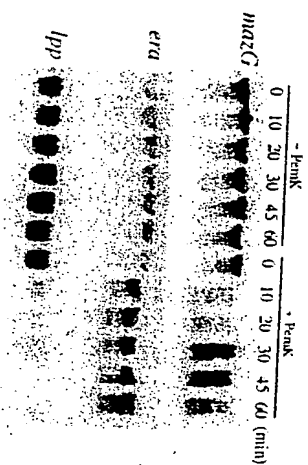


FIG. 30B

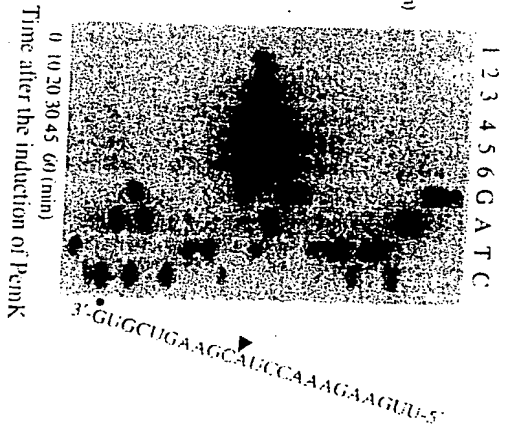


FIG. 30C

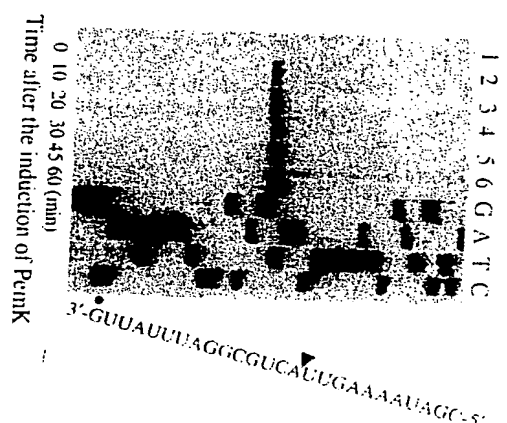
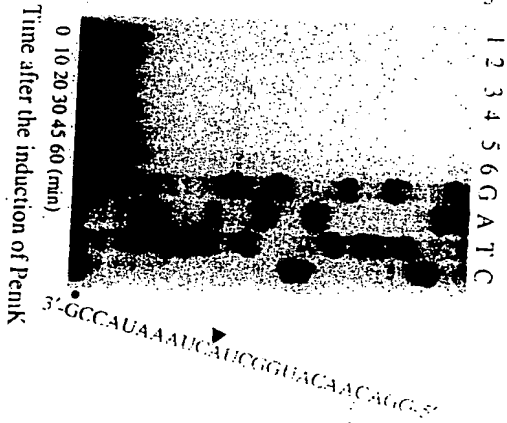


FIG. 30D



atggaaagag gggaaatctg gcttgtctcg cttgataccta
ccgcagggtca tgagcagcag ggaacgcggc cggtgctgat
tgtcacaccg gcggccttta atcgcgtgac ccgcctgcct
gttgttgtgc ccgtaaccag cggaggcaat tttgcccgcga
ctgccggcctt tgcggtgtcg ttggatgggtg ttggcatacg
taccacagggt gttgtacgtt gcgatcaacc ccggacaatt
gatatgaaag cacggggcgg aaaacgactc gaacgggttc
cggagactat catgaacgaa gttcttggcc gcctgtccac
tattctgact tga

FIG. 31A

MERGEIWLVS LDPTAGHEQ QGTRPVLIVT PAAFNRVTRL
PVVVPVTSGG NFARTAGFAV SLDGVGIRTT GVVRCDQPRT
IDMKARGGKR LERVPETIMN EVLGRLSTILT

FIG. 31B

atgcatacca cccgactgaa gagggttggc ggctcagtta
tgctgaccgt cccaccggca ctgctgaatg cgctgtctct
gggcacagat aatgaagttg gcatgggcat tgataatggc
cggctgattg ttgagccgta cagacgcccg caatattcac
tggctgagct actggcacag tgtgatccga atgctgaaat
atcagctgaa gaacgagaat ggctggatgc accggcgact
ggtcaggagg aaatctga

FIG. 32A

MHTTRLKRVG GSVMLTVPPA LLNALSLGTD NEVGMVIDNG
RLIVEPYRRP GYSLAELLAQ CDPNAEISAE EREWLDAPAT
GQEEI

FIG. 32B


```

PemKR100_E.coli 1 -----MERGEIWLVS DPTAGHROOG-TRIVIVTAAFNRVIRLPVVV:VESUGNFARTAGFAVSI DGVVIRI---TG
PemK_M.celatum 1 -----MTERGDYILVS DPTSHRCSQ-TYIVLVVS GAFNRLIKTPAVLPTRRERFARTAGFAVSI TDAVIRI---AG
PemK_P.putida 1 -MKRLKFARQDVRNLEDFVRQDQSGNFAITGAAFI-ASHLAETIQEDVGHIGPANTISGATTOI---QG
ChpBK_E.coli 1 EVFKSEFERGDIVLVGFONASPHQDQAGNANLSVQDFF-QLNTEAFDITQRENAPYVGFSPHCEEVDV---HG
PemK_S.flexneri 1 EVKARTPHGEIWFYFNPQVAGHLLTF-PHYCTAVTDKLANLKVAMCCQISTATAASSTVVTNVLPRDQGNLHG
MazF_E.coli 1 EVSRYVDEMHLIWDFFHFKSQAALHRAVLSHFMEYKKGIMCLCVACPTQ-----SKYPPFEVLSQER---DG

```

```

PemKR100_E.coli 71 VVRIDDFPTLKKAFGLLRQPTFMNVGRS IET--
PemK_M.celatum 72 VVRIDDFPTLKKAFGLLRQPTFMNVGRS IET--
PemK_P.putida 76 VMKNGVTVLEGFAPFISLFAELDMRVRQVFE--
ChpBK_E.coli 77 VVIMNDFEMMHAFLHPIGLAADEVEALLRQAVVE--
PemK_S.flexneri 80 VVIMHLLKAVDEIRGAFHTVADKLISVISKVNIDPO
MazF_E.coli 72 VVIMHLLKAVDEIRGAFHTVADKLISVISKVNIDPO

```

FIG. 34

Human Eotaxin Sequence

G	P	A	S	V	P	T	T	C	C	F	N	L	A	
AUG	GGU	CCA	GCA	UCU	GUU	CCG	ACU	ACC	UGU	UGC	UUU	AAC	CUG	GCG
N	R	K	I	P	L	Q	R	L	E	S	Y	R	R	I
AAC	CGC	AAA	AUU	CCG	CUG	CAG	CGC	CUG	GAA	AGC	UAU	CGC	CGU	AUU
T	S	G	K	C	P	Q	K	A	V	I	F	K	T	K
ACC	UCU	GGC	AAA	UGC	CCG	CAG	AAA	GCG	GUG	AUC	UUU	AAA	ACC	AAA
L	A	K	D	I	C	A	D	P	K	K	K	W	V	Q
CUG	GCG	AAA	GAU	AUU	UGC	GCG	GAU	CCG	AAA	AAA	AAA	UGG	GUG	CAG
D	S	M	K	Y	L	D	Q	K	S	P	T	P	K	P
GAU	UCU	AUG	AAA	UAU	CUG	GAU	CAG	AAA	UCU	CCG	ACC	CCG	AAA	CCG
UAA														

FIG. 35

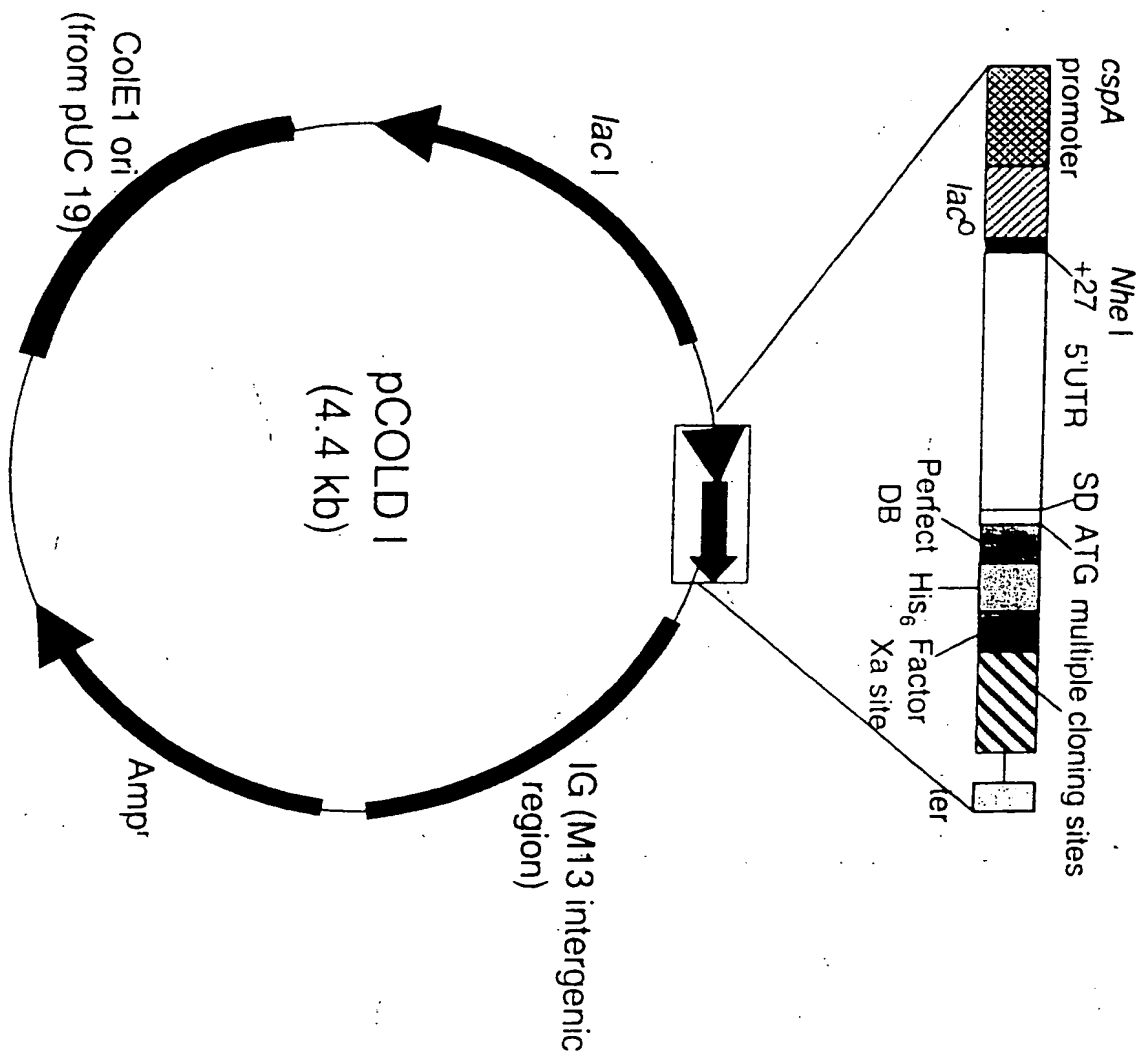


FIG. 36

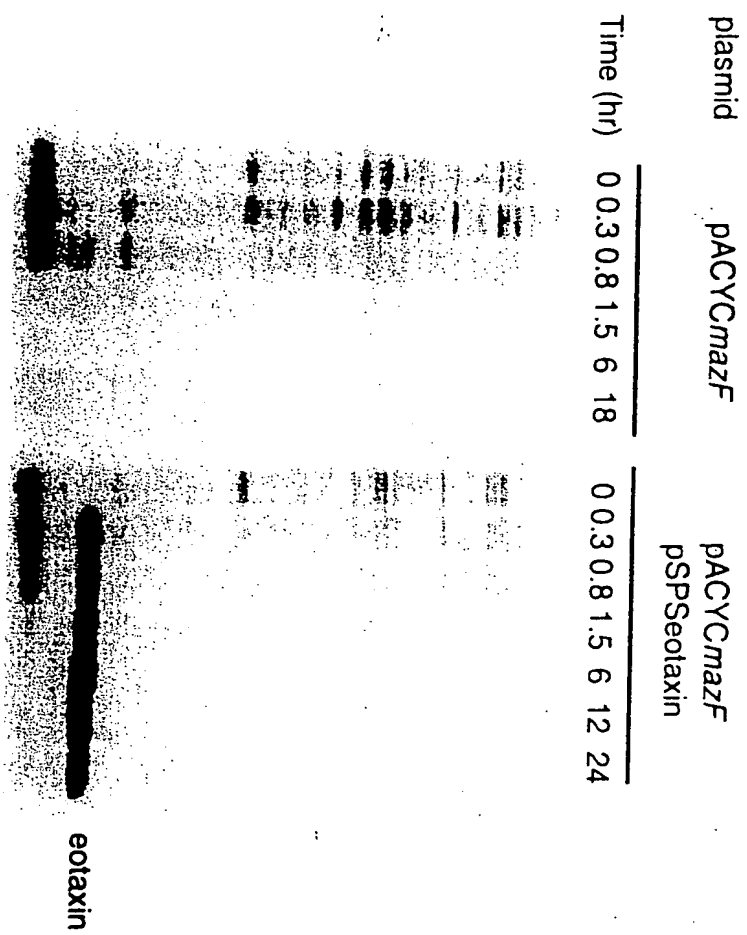


FIG. 37

FIG. 38A

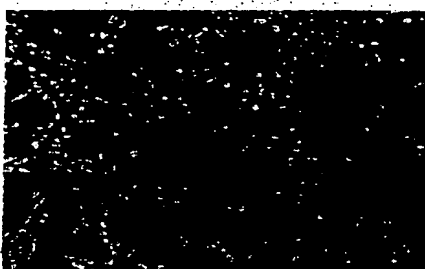
FIG. 38B

FIG. 38C

-Tetracycline



+Tetracycline



1 day

5 days

7 days

FIG. 38D

FIG. 38E

FIG. 38F

FIG.39A

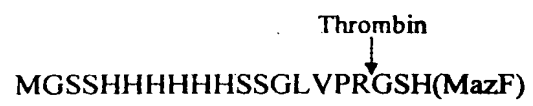
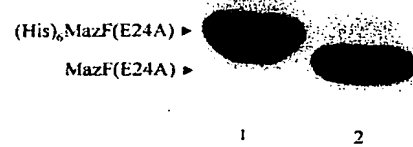


FIG.39B



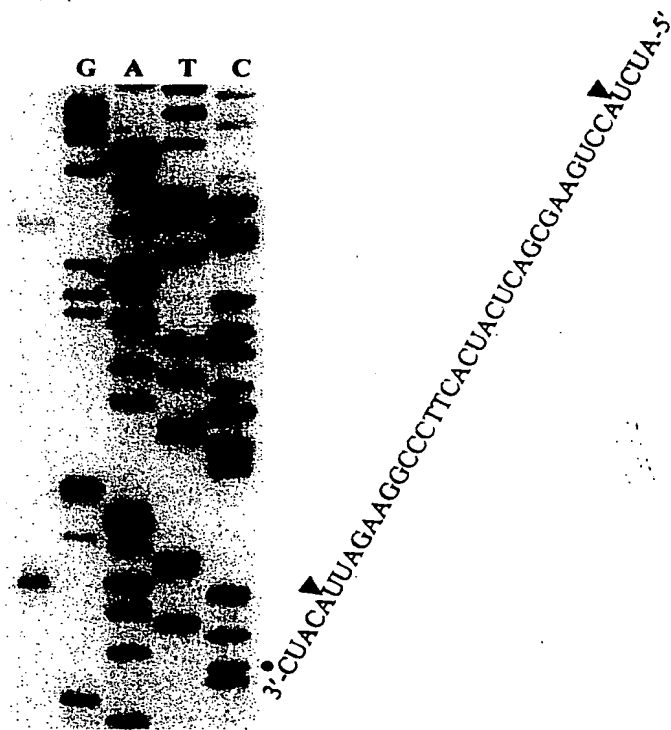


FIG.40

FIG.41A

```

Rv0456A      1  -----MLRGEI W QVDLD PARGSAANM R RPA V I V S N D R A N A A A I R L D R G V
Rv2801c      1  -----MMR RGEI W QVDLD PARGSEANN Q RPA V V S N E R A N A T A T R L G R G V
Max F        1  MVSRYVPD M G D L I W V D F D P T K G S E Q A G H R F A V V S P F M Y N N -----K T G M
Rv1991c      1  -----MVIS R A E I Y W A D L G P P S G S Q P A K R P P V L I Q S P Y N A S -----R L A T
Rv0659c      1  -----M R R G E L W F A A T -----P G S D R E V L I T R I P V A D -----R I G A
Rv1942c      1  --MTA L P A R S E V W W C E M A -----E I R P P V V V S R R A A I P -----R I R R
consensus    1  -- 1 r g e v w w e m g r R P v v v l s d a -----r l

```

```

Rv0456A      45  V P V V P V T S N T E K V P I P G V V A G S E R W P G R R F E G A G P A G W I R R C A T S P L P S -
Rv2801c      46  I T V V P V T S N I A K V - Y P F Q V L L S A T T T G L Q V D C K A Q A E Q I R S I A T E R L L R P
Max F        46  C L C V E C T T Q S K S Y - - P F E V V L S - - - G Q E R D G V A L A Q V K S I A W R A R G A T
Rv1991c      43  V I A A V I T S N T A L A A M P G N V F L P A T T T R L P R D S V I N V T A I V T L N K T D L T D R
Rv0659c      33  V V V V A L I R T R R G L V S E L E L T A V E N - - R V P S D C V I N F D N I H T L P R T A F R R R
Rv1942c      38  A L V A P C T T T I R G L A S E V V L E P G S D - - P I P R R S A V N L S V E S V S V A V L V N R
consensus    51  l v p t t r g l l s -- i p r v n d v s v s l r

```

```

Rv0456A      95  -----
Rv2801c      90  I G R V S A A E L A Q L D E A K R L H L D L W S
Max F        90  K K G T V A P E E L Q L I K A K I N V L I G - -
Rv1991c      93  V G E V P A S L M H E V D R G L R R V L L - -
Rv0659c      81  I T R L S P A R L H E A C O T E R A S T G C - -
Rv1942c      86  L S R L A D I R M S A C T A L E V A H E C S R
consensus    101 l g r l a m r i a l v d

```

FIG.41B

```

B.subtilis    1  ----MIVKR G D V Y F A D L S E V V G S E Q G G V R P V I V I Q N D I G N R F S P T A I V A A
B.anthraxis  1  ----MIVKR G D V Y F A D L S E V V G S E Q G G V R P V I V I Q N D I G N R F S P T V I V A A
S.aureus      1  ----MIRRG D V Y L A D L S E V Q G S E Q G G V R P V I I Q N D T G N K Y S P T V I V A A
E.coli        1  MVSRY V P D M G D L I W V D F D E T K S S E Q A G H R F A V V L S P F M Y N - - N K T G M C L C
consensus    1  v G D I w D P G S E Q a G R P v v l m N T g m

```

```

B.subtilis    47  I T A Q I Q K A K L P T H V E I D A K R Y G F E R D S V I L L E Q I R T I D K - Q R L T D K I T H L
B.anthraxis   47  I T A Q I Q K A K L P T H V E I D A K R Y G F E R D S V I L L E Q I R T I D K - Q R L T D K I T H L
S.aureus      46  I T G R I N K A K I P T H V E I E K K K Y K L D K D S V I L L E Q I R T L D K - K E L K E K L T Y L
E.coli        49  V P C T T Q S K G Y P F E V V L S - - - G O E R D G V A L A D Q V K S I A W R A R G A T K G T V
consensus    51  v q P V l g e r D V L d Q v k s i R K v

```

```

B.subtilis    96  D D E M M D K V D E A L Q I S L A L I D F -----
B.anthraxis   96  D E V M M I R V D E A L Q I S L G L I D F -----
S.aureus      95  S D D K M K E V D N A L M I S L G L N A V A Q P E K L G V Y Y M Y F S E I N K I L I
E.coli        95  A P E E L Q L K A K I N V L I G -----
consensus    101 a e l i i n v i g -----

```

M	V	S	R	Y	V	P	D	M	G	D	L	I	W	V	D	F	D	P	T
AUG	GUA	AGC	CGA	UAC	GUA	CCC	GAU	AUG	GCC	GAU	CUG	AUU	UGG	GUU	GAU	UUU	GAC	CCG	ACC
																			A
K	G	S	E	Q	A	G	H	R	P	A	V	V	L	S	P	F	M	Y	N
AAA	GGU	AGC	GAG	CAA	GCU	GGU	GAU	CGU	CCA	GCU	GUU	GUC	CUG	AGU	CCU	UUC	AUG	UUU	AAU
						A													C C
N	K	T	G	M	C	L	C	V	P	C	T	T	Q	S	K	G	Y	P	F
AAU	AAA	ACC	GGU	AUG	UGU	CUG	UGU	GUU	CCU	UGU	ACC	ACG	CAA	UCA	AAA	GGA	UAU	CCG	UUC
											A								
C		A																	
E	V	V	L	S	G	Q	E	R	D	G	V	A	L	A	D	Q	V	K	S
GAA	GUU	GUU	UUA	UCC	GGU	CAG	GAA	CGU	GAU	GCC	GUA	GCG	UUA	GCU	GAU	CAG	GUA	AAA	AGU
I	A	W	R	A	R	G	A	T	K	K	G	T	V	A	P	E	E	L	Q
AUC	GCC	UGG	CGG	GCA	AGA	GGA	GCA	ACG	AAG	AAA	GGA	ACC	GUU	GCC	CCA	GAG	GAA	CUG	CCA
												A							U A
L	I	K	A	K	I	N	V	L	I	G									
CUC	AUU	AAA	GCC	AAA	AUU	AAC	GUA	CUG	AUU	GGG	UAG								

FIG.42

10/560303

LAP20 Rec'd PCT/PTO 12 DEC 2005

FIG. 43A nucleic acid sequence of Mazf-mt1 (NP_217317) (SEQ ID NO: 69)

gtgatgcgcc gcggtgagat ttggcaggtc gatctcgacc ccgctcgagg tagcgaagcg
aacaaccagc gccccgccgt cgtcgtcagc aacgaccggg ccaacgcgac cgccacgcgt
cttggggcgcg gcgtcatcac cgtcgtgccg gtgacgagca acatcgccaa ggtctatccg
tttcagggtg tgttgctggc caccactact ggtctccagg tcgactgcaa ggcgcaggcc
gagcaaatca gatcgattgc taccgagcgg ttgctccggc caatcggccg agtttcagcc
gccgaacttg ccagctcga tgaggctttg aaactgcac tcgacttatg gtcgtag

FIG. 43B nucleic acid sequence of Mazf-mt2 (CAE55283) (SEQ ID NO: 70)

atgctgcgcg gtgagatctg gcaggctcac ctggatccgg cccgcggcag cgccggcaaat
atgcggcggc cagcggtaat gtcagcaac gacagggcca acgctgccgc gatacgtctc
gaccgaggcg tggcgccggt tgtcccggtt accagcaaca ccgaaaaggc cccattcca
ggtgttgttg ccggcagcga gcgggtggcct ggccgtcgat tcgaaggcgc agggccagca
ggttgatcc gtcgctgcgc aacgtctccc ctgccgagct ga

FIG. 43C nucleic acid sequence of Mazf-mt3 (CAA98393) (SEQ ID NO: 71)

gtggtgatta gtcgtgccga gatctactgg gctgacctcg ggccgccatc aggcagtcag
ccggcgaagc gccgcccggg gctcgtaatc cagtcagatc cgtacaacgc aagtcgcctt
gccactgtga tcgcagcggg gatcacgtcc aatacggcgc tggcggcaat gcccggaac
gtgttcttgc ccgcgaccac aacgcgactg ccacgtgact cggctcgtcaa cgtcacggcg
attgtcacgc tcaacaagac tgacctcacc gaccgagttg gggaggtgcc agcgagcttg
atgcacgagg ttgaccgagg acttcgtcgc gtactggacc tttga

FIG. 43D nucleic acid sequence of Mazf-mt4 (CAB09387) (SEQ ID NO: 72)

atgcggcgcg gtgaattgtg gtttgccgcc acacctggtg gtgacagacc agtacttgtc
cttaccagag atccgggtggc agaccgcac ggcgcggtcg ttgtggtggc cctaaccgcg
acccgccgag gcctgggtgtc ggaattggag ctacacggccg tcgaaaaccg tgttccgagc
gactgcgtcg tcaacttcga caacattcat acgttgccac gcaccgcatt ccgacgccgc
atcacccggc tgtccccggc ccgcctgcac gaagcctgtc aaacactccg ggcgagcacg
gggtgttga

FIG. 43E nucleic acid sequence of Mazf-mt5 (CAB06519) (SEQ ID NO: 73)

gtgaccgcac ttccggcgcg cggagagggtg tggtggtgtg agatggctga gatcggtcgg
cgaccagtcg tcgtgctgtc gcgcgatgcc ggcgtccctc ggctgcgacg cgcacttgtc
gcgccttgca ccacgaccat ccgagggcta gccagtgagg ttgttcttga acccggttcc
gaccgatcc cgcgcggttc cgcggtgaat ttggactcag tcgaaagtgt ctcggtcgcg
gtattggtga atcggttgg ccgcctcgc gacatccgga tcgcgcacat ctgcacggcc
ctcgaggtcg ccgtcgattg ctctcgatga

FIG. 44A amino acid sequence of Mazf-mt1 (NP_217317) (SEQ ID NO:74)

MMRRGEIWQV DLDPARGSEA NNQRPAVVVS NDRANATATR LGRGVITVVP VTSNIAKVYP
FQVLLSATTT GLQVDCKAQA EQIRSIATER LLRPIGRVSA AELAQLDEAL KLHLDLWS

FIG. 44B amino acid sequence of Mazf-mt2 (CAE55283) (SEQ ID NO:75)

MLRGEIWQVD LDPARGSAAN MRRPAVIVSN DRANAAAIRL DRGVVPVVPV TSNTEKVPIP
GVVAGSERWP GRRFEGAGPA GWIRRCATSP LPS

FIG. 44C amino acid sequence of Mazf-mt3 (CAA98393) (SEQ ID NO:76)

MVISRAEIIW ADLGPPSGSQ PAKRRPVLVI QSDPYNASRL ATVIAAVITS NTALAAMPGN
VFLPATTTRL PRDSVVNVTA IVTLNKTDLT DRVGEVPASL MHEVDRLRR VLDL

FIG. 44D amino acid sequence of Mazf-mt4 (CAB09387) (SEQ ID NO:77)

MRRGELWFAA TPGGDRPVLV LTRDPVADRI GAVVVVALTR TRRGLVSELE LTAVENRVPS
DCVVNFDNIH TLPRTAFRRR ITRLSPARLH EACQTLRAST GC

FIG. 44E amino acid sequence of Mazf-mt5 (CAB06519) (SEQ ID NO:78)

MTALPARGEV WWCMAEIGR RPVVVLSRDA AIPRLRRALV APCTTTIRGL ASEVVLEPGS
DPIPRRSVN LDSVESVSVA VLVNRLGRLA DIRMRAICTA LEVAVDCSR

Figure 45A nucleic acid sequence of *Pseudomonas putida* Pem-like gene (KT2440) (SEQ ID NO: 81)

```

                                gtgaa acggttgaaa ttcgccaggg gtgatattgt
tcgcgtcaac ctggacccaa cagtcgggcg ggaacagcag ggctccggcc gacctgcact
ggtacttact ccggctgcgt tcaatgcttc aggcctggct gtaatcatcc cgatcactca
aggtggggat ttcgcgaggc atgcggggtt cgctgtcacg ctcagcgggtg cgggcacgca
gactcagggg gtgatgcttt gcaaccaggt gcgcacagtc gaccttgaag cacgatttgc
caagcgcata gagtcggtgc ctgaagctgt catcctggat gcactggcgc gtgtgcaaac
cctattcgat taa

```

Figure 45B nucleic acid sequence of *Mycobacterium celatum* Pem-like gene (SEQ ID NO: 82)

```

                                t gaattgctct gacggaacgc
ggcgacatct acatcgtttc gcttgaccgc acgtcgggac atgagcagag cggcacgcgc
ccagtattgg tcgtgtcccc gggcgcggtt aatcgctga cgaaaacacc ggtcgtgcta
cctataacac gcggcgggaa ctttgcccga acggcagggt tcgctgtctc gctgaccgat
gcgggtactc gcaccgccgg cgtaatacgc tgcgatcagc ctcgctcgat tgatatccgc
gcccgtaaag gccgcaaggt tgaacgtgtg ccgtctgggg ttcttgacga agcgttggcc
aagctcgcca cgatcttgac ttga

```

Figure 45C nucleic acid sequence of *Shigella flexneri* 2a str. 301 Pem-like gene (SEQ ID NO: 83)

```

                                atggtaaag gcacggacgc
cacatcgtgg tgagatctgg tattttaacc ctgatccggt tgccgggcat gaacttcagg
ggccacatta ttgcattgtg gtaacggaca aaaaactcaa caatgtttta aaagttgcta
tgtgtgccc gatttcaaca ggggcaaata cagcacgttc cacaggggtg acggtgaacg
tcttccccg tgatacgcaa accggttaacc tgcattggcg tgtactttgt caccagctaa
aagccgtcga tcttattgcc cgtggcgcta aatttcatac cgttgccgat gaaaaattga
ttagtgaagt tatcagtaaa ctggtgaatt taatcgaccc acaataa

```

Figure 45D nucleic acid sequence of *E. coli* ChpBK (SEQ ID NO: 84)

```

                                atggt aaagaaaagt gaatttgaac
ggggagacat tgtgtcgggt ggctttgatc cagcaagcgg ccatgaacag caaggtgctg
gtcgacctgc gcttgtgctc tccgttcaag cctttaatca actgggaatg acgctgggtg
ccccattac gcaggcgga aattttgcc gttatgccgg atttagcgtt cctttacatt
gcgaagaagg cgatgtgcac ggcgtggtgc tggatgaatca ggtgcggatg atggatctac
acgcccggct ggcaaagcgt attggtctgg ctgcggatga ggtggtggaa gaggcgttat
tacgcttgca ggcggtggtg gaataa

```

FIG. 46A amino acid sequence of *Pseudomonas putida* KT2440 Pem-like protein (SEQ ID NO: 85)

MKRLKFARGD IVRVNLDPTV GREQQGSGRP ALVLTAAAFN ASGLAVIPI TQGGDFARHA
GFAVTLTGAG TQTQGVMLCN QVRTVDLEAR FAKRIESVPE AVILDALARV QTLFD

FIG. 46B amino acid sequence of *Mycobacterium celatum* Pem-like protein (SEQ ID NO: 86)

MTERGDIYIV SLDPTSGHEQ SGTRPVLVVS PGAFNRLTKT PVVLPITRGG NFARTAGFAV
SLTDAGTRTA GVIRCDQPRS IDIRARKGRK VERVPSGVLD EALAKLATIL T

FIG. 46C amino acid sequence of *Shigella flexneri* 2a str. 301 Pem-like protein (SEQ ID NO: 87)

MVKARTPHRG EIWFNPDPV AGHELQGPY CIVVTDKKLN NVLKVAMCCP ISTGANAARS
TGVTNVNLPV DTQTGNLHGV VLCHQLKAVD LIARGAKFHT VADEKLISEV ISKLVNLIDP
Q

FIG. 46D amino acid sequence of *E. coli* ChpBK (SEQ ID NO: 88)

MVKKSEFERGDIVLVGFDPASGHEQQGAGRPALVLSVQAFNQLGMTLVAPITQGGNFARYAGFSVPLHCEE
DVHGVVLVNQVRMMDLHARLAKRIGLADEVVEEALLRLQAVVE

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